TUBERCULOSIS MANUAL

FOR

HEALTH COMMISSIONERS

Prepared by
The Division of Tuberculosis
Ohio Department of Health

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INTRODUCTION

Despite the fact that the last four decades have seen a material reduction in death rates from tuberculosis, this disease still remains a problem of major public health significance. Tuberculosis will remain a serious problem until a therapeutic agent is found that is capable of promptly rendering the infectious cases noncommunicable and of producing a high rate of cure or arrest.

In the present state of our knowledge, effective control resolves itself into persistent effort directed toward the location and treatment of cases in their earliest stages, with the isolation of communicable cases where necessary for the protection of the public health.

In this Manual is provided such pertinent information as is essential to a working knowledge of tuberculosis and the public health aspects of its control.

Roger E. Heering, M.D.
Director of Health

FORWARD

This Manual has been prepared for the Health Commissioners of Ohio so that they may better serve public health in the field of tuberculosis control.

The purpose of this Manual is to briefly set forth facts pertinent to the diagnosis, treatment and control of tuberculosis, together with a description of the facilities which have been developed and which are available for laboratory and clinical aid.

Arnold B. Kurlander, M. D.
Chief, Division of Tuberculosis

OBJECTIVES OF A TUBERCULOSIS CONTROL PROGRAM

The objectives of a tuberculosis control program are:

1. Case finding
2. Isolation and treatment
3. After care and rehabilitation
4. Protection of the family of the tuberculous from economic distress, particularly when the patient has provided partial or complete support to the family.

In order to achieve the four principle objectives of tuberculosis control, it is believed that considerable assistance can be given to local health departments by the Ohio Department of Health.

The Division of Tuberculosis of the Ohio Department of Health is responsible for:

1. The development and maintenance of a comprehensive program of tuberculosis control, including -

    a. The annual inspection and such other inspections as may be required of all tuberculosis hospitals in the state
    b. The maintenance of a central register of all reported cases of tuberculosis
    c. The provision of consultation and assistance to local health departments in the development of local tuberculosis control programs
    d. The establishment of pilot projects on a demonstration basis
    e. The conduction of case finding surveys
    f. The administration of federal tuberculosis grant-in-aid funds to local health districts

GENERAL INFORMATION

In order to develop a sound tuberculosis control program, it is necessary to have available essential data on the needs and resources of the particular community. Suggested information to be acquired is as follows:

1. The total population of each unit, ward, township or village. These population figures should be classified according to race, color, sex, age and estimated number of families.

2. The names of schools in each particular unit, township or village, giving pupil enrollment and teachers for each.

3. Name, location and kind of industries and approximate number of employees for each.

4. Information on economic conditions, such as per capita wealth, welfare case load, unemployment, housing, etc.

5. Names of agencies and personnel of voluntary groups with whom the official health agency can cooperate and coordinate activities. It is extremely important that continuous effort be made

to coordinate the activities of state and local tuberculosis associations, local tuberculosis hospitals, welfare agencies, the medical profession, visiting nurses, county clerks, the probate court, churches, commerical clubs, boards of education, law enforcement, Parent Teacher Associations, etc.

6. A local health department should utilize all sources of information regarding known and suspected cases of tuberculosis. Such information can be obtained from the Division of Tuberculosis, Ohio Department of Health, physicians, welfare agencies, county, school and visiting nurses, etc. Data regarding recent deaths from tuberculosis can be obtained from death certificates and the name and address of the family recorded on a list for follow-up of contacts. A rough estimate of the number of cases of tuberculosis in a community can be made by multiplying the average annual number of tuberculosis deaths by the factor fourteen (14).

PULMONARY TUBERCULOSIS

REPORTABLE CASES DEFINED

1. Pulmonary Tuberculosis

   A. Primary
      (1) Active - The patient has a positive tuberculin reaction. The x-ray shows evidence of parenchymal infiltration or enlargement of hilum nodes or both.
      (2) Questionably Active - The patient has a positive tuberculin reaction. The x-ray reveals the pulmonary lesion to be of indeterminate stability.

   B. Reinfection (specify stage) - Minimal, moderately advanced, far advanced.
      (1) Active
      (2) Questionably Active
      (3) Inactive

2. Acute pleurisy with effusion, in the absence of demonstrable parenchymal lesions, trauma, or other demonstrable causative factor is considered to be of tuberculous etiology.

3. Active non-pulmonary tuberculosis (specify location)

NON-REPORTABLE CASES DEFINED

1. Inactive Primary:
   The patient usually has a positive tuberculin reaction and chest x-ray may show areas of (pulmonary) calcification in the parenchyma or hilum, or both.

2. Inactive Non-Pulmonary Tuberculosis:

CLASSIFICATION AND DEFINITION OF REPORTABLE CASES

Tuberculosis control is dependent to a large extent upon reliable and accurate records.

The classifications of tuberculosis are necessary, namely:

I. TYPES OF DISEASE

A. Primary Tuberculosis:
Primary tuberculosis is a first infection with tubercule bacilli and renders the individual sensitive to tuberculin. It is usually benign, but occasionally it may progress and serious complications ensue.

B. Reinfection Tuberculosis:
Of all persons who acquire a primary infection at some time, only a small percentage ever develops clinical disease. Following the period of the primary infection and its more or less direct consequences, a latent period usually intervenes before chronic pulmonary tuberculosis develops. The latter is due to reinfection with tubercule bacilli. The reinfecting bacilli are derived from exogenous or endogenous sources.

II. EXTENT OF DISEASE (National Tuberculosis Association Classification)

A. Minimal Tuberculosis:
Slight lesions without demonstrable excavation confined to a small part of one or both lungs. The total extent of the lesions, regardless of distribution, shall not exceed the equivalent of the volume of lung tissue which lies above the second chondrosternal junction and the spine of the fourth or body of the fifth thoracic vertebra on one side.

B. Moderately Advanced:
One or both lungs may be involved, but the total extent of the lesions shall not exceed the following limits:

1. Slight disseminated lesions which may extend through not more than the volume of one lung, or the equivalent of this in both lungs.

2. Dense and confluent lesions which may extend through not more than the equivalent of one-third the volume of one lung.

3. Any gradation within the above limits.

4. Total diameter of cavities, if present, estimated not to exceed 4 cm.

C. Far Advanced:
Lesions more extensive than moderately advanced.

III. DEGREE OF ACTIVITY

For cases which have been under medical supervision for a period of time, e.g. patients in the sanatorium, the following classification devised by the National Tuberculosis Association is used:

A. Apparently Cured:
Constitutional symptoms absent. Sputum, if any, must be found negative for tubercle bacilli, not only by concentration and microscopic examination but also by culture and animal inoculation. In case there is no sputum, the fasting gastric contents should be examined. Lesions stationary and apparently healed according to x-ray examination. These conditions should have existed for a period of two years under ordinary conditions of life.

A considerable but undetermined percentage of apparently cured patients, particularly those who have fulfilled the above requirements not only for two but for six years, may in regard to their survival expectancy (as to tuberculosis) reach normal standards.

B. Arrested:
Constitutional symptoms absent. Sputum, if any, must be concentrated and found microscopically negative for tubercle bacilli. Lesions stationary and apparently healed according to x-ray examination; no evidence of pulmonary cavity. These conditions should have existed for a period of six months during the last two of which the patient has been taking one hour's walking exercise twice daily, or its equivalent.

C. Apparently Arrested:
Constitutional symptoms absent. Sputum, if any, must be concentrated and found microscopically negative for tubercle bacilli. Lesions stationary and apparently healed according to x-ray examination; no evidence of pulmonary cavitation. These conditions should have existed for a period of three months, during the last two of which the patient has been taking one hour's walking exercise daily, or its equivalent.

D. Quiescent:
No constitutional symptoms. Sputum, if any, may contain tubercle bacilli. Lesions stationary or retrogressive according to x-ray examination; cavity may be present. These conditions to have existed for at least two months during which time the patient has been ambulant.

E. (Frankly) Active (Improved, Unimproved):
Symptoms unchanged, worse or less severe, but not completely abated. Lesions not completely healed or progressive according to x-ray examination. Sputum must

always contain tubercle bacilli.

F. Dead

DEGREE OF ACTIVITY - A WORKING CLASSIFICATION USED IN THE STATE OF OHIO

This classification is practical in dealing with newly diagnosed cases and cases with insufficient or limited observation.

A. Active:
Cases of tuberculosis in which the x-ray reveals the lesion to be definitely soft or ulcerative, or in which comparative films show recent evidence of progression or retrogression of the disease. The sputum, if any, may or may not contain tubercle bacilli. Signs and symptoms of tuberculosis may or may not be present.

B. Questionably Active:
Cases of tuberculosis in which the x-ray reveals the lesion to be of indeterminate stability, without ulceration, requiring further observation. Sputum, if any, must not contain tubercle bacilli. Physical signs of tuberculosis may or may not be evident. Symptoms are not present.

C. Inactive:
Cases of tuberculosis in which the x-ray reveals the lesion to be stable, without ulceration and apparently healed. Sputum, if any, must be negative for tubercle bacilli. Physical signs of tuberculosis may or may not be evident. Symptoms are not present.

TYPES OF TUBERCULOSIS OTHER THAN PULMONARY

A. Tuberculous Meningitis:
Infection of the meninges by tubercle bacilli is a manifestation of hematogenous dissemination of the organisms. It may develop as a complication of primary or reinfection tuberculosis and implies ulceration of a pulmonary vein as the mode of entrance of organisms into the blood stream. The disease is most common in infancy and early childhood although it may complicate the terminal stage of pulmonary reinfection tuberculosis at any age. The symptoms of tuberculous meningitis are more insidious in their onset than those of meningitis of other infectious origin. Therefore, when comparatively mild but continuing symptoms of irritations of the central nervous system are present, tuberculous meningitis should be suspected. Confirmation of the diagnosis is made by examination and culture of the spinal fluid. A history of exposure to an active case of pulmonary tuberculosis is strong presumptive evidence. The disease is practically always fatal.

B. Tuberculosis of Intestines and Peritoneum:
Intestinal tuberculosis is most commonly found associated with advanced pulmonary tuberculosis. Cases of perineal fistula

should receive an x-ray examination of the chest. In most instances the infection results from swallowing the tubercle bacilli. The most common site of ulceration is the large intestine, particularly the cecum. Primary tuberculous infection may occur in the intestine. In such primary infection, the bacilli are carried to the mesenteric lymph nodes and the infection usually subsides without symptoms. Caseation and ulceration of mesenteric lymph nodes may lead to tuberculous peritonitis. Primary intestinal tuberculosis is uncommon now that bovine tuberculosis has been almost eradicated and pasteurized milk is used more commonly. It has been observed that intestinal tuberculosis is more common as a complication of pulmonary disease where the diet is deficient in vitamins C and D and calcium. Frequently, moderate intestinal tuberculosis will subside as soon as the pulmonary lesions are brought under control and vitamins and calcium are supplied.

C. Tuberculosis of Bones and Joints:
Tuberculous infection of bones and joints occurs as a result of hematogenous implantations of tubercle bacilli in bone and joint tissues. When bone disease has advanced to the stage of producing symptoms the site of origin of the infecting agent may have subsided or may be insignificant. When infection with the bovine type of bacillus was more common it seemed to have a predilection for bone tissue. The most common bones to be affected are the vertebrae. Pain and rigidity of surrounding muscles which persists for more than a short time should lead to an x-ray examination of the bones and joints involved.

D. Tuberculosis of the Skin:
Lupus vulgaris, erythema nodosum, and other manifestations of skin tuberculosis are comparatively uncommon in this country.

E. Tuberculosis of the Lymphatic System:
Exclusive of the tracheo-bronchial and mesenteric lymph nodes, the most common site for tuberculous lymphadenitis is in the cervical chains. Such infection begins in the tonsils. Where there is persistent enlargement of the glands not obviously accounted for by other infections, tuberculous infection should be considered.

F. Tuberculosis of the Genito-Urinary System:
Tuberculous infection of the kidneys is the result of hematogenous implantation of tubercle bacilli. Frequently tuberculous nephritis is well advanced before definite symptoms are manifest. In most instances the lesions at the site of origin are comparatively benign. Fortunately many cases are unilateral. Diagnosis is established by examination of urine obtained by catherization of the ureters and x-ray examination. Tuberculous salpingitis should be suspected in cases of pulmonary tuberculosis displaying pelvic symptoms.

CLASSIFICATION OF PERSONS REQUIRING SUPERVISION

In a tuberculosis control program, it is convenient to list in several categories all individuals who require some form of periodic supervision by the health department. A record of supervision for control should be made for each type of case. When a patient is confined to a hospital or sanatorium, no supervision is necessary, but a record should be kept as hospital case reports are received of admission, transfer or discharge. When discharged to home, such cases will enter one of the other classifications.

Suggested division of classification is as follows:

A. Cases not hospitalized

1. Hospitalization pending
2. Refused hospitalization

B. Periodic examination group

1. Ex-patients
2. New inactive cases
3. Active cases isolated at home (by agreement with health department)

C. Contacts

1. Examined
2. Not examined
3. Examined during month

D. Observation cases (diagnosis not confirmed)

E. Patients in hospital

F. Closed cases and contacts, including deaths

TUBERCULOSIS CASE REGISTER

It is suggested that the responsibility of maintaining the register be placed on one clerk, who will receive the reports of x-rays, laboratory examinations, etc., recording the same on the proper cards and passing on the original information to the nurse concerned before the information is filed in the family folder.

It is recommended that at least once each month, the director go through the tuberculosis register with the clerk, for the purpose of counting and checking the cards for cases and contacts, to see that they are in their proper categories. Also, it is recommended that once each month, the director discuss with the nurse of each district the status of cases and contacts in her district.

CASE FINDING

Methods of case finding are by:

1. Tuberculin testing
2. X-ray examinations
3. Physicians' reports
4. Laboratory reports
5. Sanatorium admissions
6. Death certificates

A special report form is furnished physicians by the Ohio Department of Health for reporting cases of tuberculosis. The health commissioner should note death certificates for cases of tuberculosis not previously reported so that family follow-up can be made. A follow-up should be made on laboratory reports marked "tubercle bacilli found".

THE TUBERCULIN TEST:

I. Intradermal:
Old Tuberculin (O.T.) is used, or preferably the new Purified Protein Derivative of tuberculin (PPD) which is the active principle of O.T. The method of injection is the same as in any other intracutaneous test.

If O.T. is used, it should be diluted with sterile physiological salt solution to such strength that 0.1 cc. contains the desired dose. Dilutions should be kept in the refrigerator when not in use and never employed when more than two weeks old. The first dose given (with the exception noted below) should be 0.01 mg. If no reaction occurs with this amount, 1.0 mg. is ordinarily given. In cases where extra caution seems advisable, 0.1 mg. may be used as the second dose, followed by 1.0 mg. if the reaction is negative.

0.01 mg. O.T. is contained in 0.1 cc. of a 1:100,000 dilution.
.1 mg. O.T. is contained in 0.1 cc. of a 1:1,000 dilution.
1.0 mg. O.T. is contained in 0.1 cc. of a 1:100 dilution.

The Purified Protein Derivative, which is recommended by the Committee on Medical Research of the National Tuberculosis Association for uniformity in dosage, to replace the variable preparation of O.T., is put up in sterile tablets of two strengths, containing respectively 0.0002 and 0.05 mg. by actual weight of the purified active substance. The tablets are accompanied by a sterile buffered saline solution. When they are dissolved in 1 cc. of this solution, 0.1 cc. contains the recommended dosage, viz. 0.00002 mg. for the first injection and 0.005 mg. for the reinjection of those failing to respond to the first strength. The dilutions are of the same stability as those of O.T. but as all high dilutions of tuberculin tend to lose strength on standing, it is recommended that dilutions be discarded at the end of the day.

In the injection of either O.T. or the Purified Protein Derivative of tuberculin, a 1.0 cc. tuberculin syringe with a 26 gauge, platinum needle of half-inch length is the best one to use. The injection should be made on the flexor surface of the forearm, about two inches below the elbow. The skin should first be cleansed with alcohol. Then the needle is inserted intracutaneously and 0.1 cc. of the tuberculin dilution injected. If this is done correctly, a small white bleb will rise over the needle point. Great care should be taken that the tuberculin is not injected subcutaneously. If this occurs, no local reaction may be seen, and a general febrile reaction may result.

Caution: In children with swollen cervical nodes, ulcerations or discharging sinuses, 0.001 mg. of O.T. or 0.000002 mg. of the Purified Protein Derivative should first be used, as a stronger dose will sometimes cause very severe reactions.

READING THE INTRACUTANEOUS TUBERCULIN TEST

A positive reaction is one that shows edema and redness of varying degree after forty-eight hours, or later. If there is no edema, the reaction should be considered negative.

Positive reactions may be arbitrarily classified as one, two, three or four plus, depending upon the extent of edema measured at its widest diameters. A reaction showing some redness and definite edema, more than 5 mm. and not exceeding 10 mm. in diameter, is recorded as a one-plus (+) reaction. A two-plus (++) is an area of redness and edema measuring from 10 to 20 mm. in diameter. A three-plus reaction (+++) is characterized by marked redness and edema exceeding 20 mm. in diameter. A four-plus reaction (++++) consists of marked redness, edema and an area of necrosis. A reaction with slight redness and a trace of edema, measuring 5 mm. or less in diameter, is marked doubtful. If there is no edema at the site of injection, even if a slight redness is present, the test is recorded as negative. In interpreting the tuberculin reaction, it must be remembered that redness is of less significance than the edema.

When reading the tuberculin test, the arm should be in a good light and flexed a little at the elbow. If the arm is held straight out, the muscles may be taut enough to obliterate the redness and the edema. It is well, also, to look across the arm rather than down on it. Pass the finger over the tested area; the induration caused by the edema can be felt even when it does not produce an elevation that can be seen.

A positive tuberculin test always means the presence of tuberculous infection. Failure to get a positive reaction, however, does not always exclude tuberculosis. Sensitiveness to tuberculin may be absent in acute miliary or generalized tuberculosis and during some infectious diseases.

It is found occasionally that a person once a reactor may later become negative to the test. Calcified pulmonary nodules are rather frequently seen in persons who fail to react to tuberculin. In such cases, the focus of disease is obsolete or the lesion is non-tuberculous.

However, the results of recent studies may necessitate a revision of former concepts of the significance of the tuberculin test. It should be pointed out here that the severity of the reaction usually recorded as 1 plus, 2 plus, 3 plus or 4 plus to a certain dosage of tuberculin, is of little or no diagnostic value. Persons with tuberculosis requiring treatment may have strong or weak reactions, and the same is true of persons who have no demonstrable tuberculous lesions.

II. Dermal:
The tuberculin Patch test (Vollmer) is advocated by some. The test consists of applying to the skin of the inner surface of the forearm or elsewhere a square that has been saturated with Old Tuberculin. The skin surface is previously cleansed and defatted with pledgets of absorbent cotton soaked in acetone. The filter paper remains in contact with the skin for forty-eight hours, and the test is read after an additional forty-eight hours. The patch has an advantage inasmuch as it involves no injection and may be permitted by the individual when other tests are refused. It is subject to inaccuracy, however, because the amount of tuberculin coming in contact with the skin is not uniform.

TUBERCULIN TESTING OF SCHOOL CHILDREN

Periodic testing of school children, as a case finding procedure, is the least productive of all the methods we can employ. Nevertheless, there is no doubt that more time, energy and material have been expended on surveying school children than on checking any other group of the population. The time, energy and money spent in this project might well be diverted toward more productive activities. However, in rural areas particularly, the school can be used to advantage as a center for group testing. Contacts of cases and of persons who have recently died in a school district may be tested in a group at the school. Among such contacts will be found children of all ages, but they are included because they are contacts. In such a group, preschool children and children of the first and second grades could be tested. Few of these children will react positively but in such instances the source of infection may be found by investigating the positive reactors' households. Older children, especially girls, ages 16 to 20, may also be included simply because they are in the susceptible age group.

TUBERCULIN TESTING IN INDUSTRY

Industrial employees are easily reached by mass radiography and this method of case finding for this group is preferred to tuberculin testing.

Tuberculin testing as a diagnostic agent finds the greatest usefulness in the hands of the trained private physician, in clinic practice and in hospital service. Used under these circumstances it is not only a case finding measure, but an important aid in differential diagnosis. Tuberculin as a case finding method in the hands of public agencies is assuming a less important place as the years go by. It has largely been replaced by mass radiography.

X-RAY EXAMINATIONS

The cost of x-ray examinations is an exceedingly important item where a tuberculosis program is in operation. Where funds are limited, careful history taking can confine the service to actual suspects. If at all possible, the health department budget should include an item for x-rays of all post sanatorium cases requiring periodic follow-up, contacts of new cases, and such other groups as may be referred to the health department through the regular channels of private physician or other community agencies.

MASS RADIOGRAPHY

The introduction of mass radiography has greatly changed our previous concepts of case finding by departments of health. A mass x-ray survey of a community is a project of considerable proportions and successful application of this case finding method depends largely upon careful planning and the active cooperation of all the people.

The Ohio Department of Health now maintains two Mobile X-ray Units available to any local health department upon request. There is no charge for this service and requests should be sent to the Division of Tuberculosis, Ohio Department of Health. The scheduling of surveys must be left to the Division of Tuberculosis because the efficient use of the Mobile Units requires long range planning. The Mobile Units provide a screening service. Retakes should be made of the abnormal cases on full size film (14" x 17").

Recommended residents to be examined in a community:

1. Persons employed in industry
2. Susceptible racial groups
3. High school and college students
4. Patients in mental hospitals
5. Prison populations
6. Persons admitted to general hospitals (standard equipment should remain in hospital and belong to hospital)
7. General population

For details in organizing a mass radiographical survey, consult "A Guide for the Organization of Community Mass X-Ray Survey", Ohio Department of Health manual.

LABORATORY SPECIMENS

There is no more certain evidence of the presence of tuberculosis than the finding of tubercle bacilli in body secretions or excretions, and therefore the laboratory can render a service of first importance in a tuberculosis control program.

(Form used in submitting sputum specimens)

OHIO DEPARTMENT OF HEALTH--LABORATORIES--COLUMBUS

TUBERCULOSIS

Sputum Specimens_____ Lab. No._____
Date Rec'd_____ Date Rep't_____

Patient's Name_____
Last First Middle

P.O. Address_____ City_____ County_____
Birthdate_____ Sex: M ☐ F ☐ Color: W ☐ B ☐ Other ☐
Date Spec. Collected:_____ Single ☐ Pooled ☐
Physician's Name:_____
Physician's Address:_____
Health Commissioner:_____
Health District:_____
(over)

Directions for Collecting and Submitting Sputum Specimens

The sputum coughed up by the patient on rising in the morning is preferred. Just before collecting the specimen, the patient should brush the teeth, clean the tongue well with the tooth brush and then wash the mouth several times with water.

Collect three specimens on three successive mornings. Place specimens in the refrigerator and pool them as they are collected. When the third specimen has been added to the other two, forward the container, together with the blank properly filled out, to

Laboratories, Ohio Department of Health
Columbus, Ohio

BE SURE THE OUTSIDE OF THE CONTAINER IS CLEAN

It is often advisable that the nurse or physician supervise the collection of sputum specimens to make certain the specimen submitted is that of the patient and that the specimen is sputum and not nasal secretions or saliva. In those instances where there is a suggestive history, symptoms or clinical evidence, several specimens of sputum should be obtained, particularly if x-ray is not readily available. A supply of sputum containers should be carried in the car ready for use on indication. Where containers must be handled after collection of the sputum, it is best to hold them with a paper towel and then wash the hands and outside of the container with plenty of soap and water. The identification slip should be

carefully made out, at the time of leaving the containers, if the patient is to mail the specimen to the laboratory.

No specimen should be submitted for a patient without the knowledge and consent of the attending or family physician. The health department should encourage physicians to submit specimens of sputum by keeping them supplied with containers. The health commissioner will often find an opportunity to suggest to a physician that a specimen of sputum, gastric washings, spinal fluid, pleural fluid, ascitic fluid, urine or feces be submitted for laboratory examination.

GASTRIC LAVAGE IN THE DIAGNOSIS OF TUBERCULOSIS

In early cases where there is no sputum or where sputum is scanty, or for purposes of check up on cases which have previously had sputum but are no longer expectorating, gastric lavage is indicated. In these cases, the stomach washing is the only fluid in which tubercle bacilli can be found. Here the stomach acts as a basin in which all the mucus and inflammatory exudate swallowed during the night is collected. The mucus and exudate are carried up through the bronchi by ciliary action and are swallowed. During the sleeping hours the stomach is at rest. All that is swallowed remains until peristalsis begins in the morning. Peristalsis starts on arising and with the initial ingestion of food, or fluid, hence the importance of collection of stomach contents early in the morning before the patient is about or has taken food or fluid.

If a smear from the concentrated sediment of gastric washings or sputum reveals no acid fast organisms, the Ohio Department of Health Laboratory uses cultures for detection.

To prevent contamination of gastric specimens, they should be collected in the following manner:

1. Collect three specimens on three successive mornings. Place the specimens in the refrigerator and pool them as they are collected. When the third specimen has been added to the other two, forward the specimen to the State Department of Health Laboratory, Columbus, Ohio, by the earliest possible mail.

2. Request the patient to remain in bed and take no fluid or food until the specimen is collected.

3. Just before the lavage instruct the patient to brush the teeth, clean the tongue well with a tooth brush, and then wash the mouth several times with an alkaline mouth wash, and finally to gargle with the same fluid.

4. After thoroughly cleaning and drying the stomach tube, wrap it in muslin and autoclave it at fifteen pounds pressure for twenty minutes. A number of such packages can be kept in the linen closet or wherever sterile packages are stored.

5. Sterilize tap water in a similar manner in flasks. Use this

rather than unsterilized water to complete the lavage. Not more than 20 to 30 cc of water should be used. When the tube is put down, the syringe is attached and gentle suction is made with the piston. If nothing is obtained, the tube should be lowered and another attempt made to aspirate the contents. If this should be unsuccessful, the tube should be elevated and another attempt made to aspirate. As much material is to be aspirated without the use of water as possible. After removal of all possible material, 20 to 30 cc of water may be squirted into the stomach. This is to be drawn up into the syringe and squirted back into the stomach several times. When it is finally drawn up, it is to be placed in the bottle with the rest of the specimen. It sometimes happens that nothing can be obtained until water is used - a dry stomach. This should not happen very often and every attempt should be made to get a specimen before beginning to wash with water.

6. Do not put the tube in a basin of cracked ice or unsterile water before it is put down. It is common practice to chill tubes in this manner before they are put down, but contamination may be introduced in this procedure. Instead passage may be facilitated by dipping the tip and first part of the tube into sterile glycerine or a medicine glass of sterile mineral oil.

7. The containers into which the specimens are collected must be sterile. The best container is a screw cap, water tight bottle. The bottles can be sterilized in an autoclave at fifteen pounds pressure for twenty minutes. Screw the caps on before the bottles are placed in the autoclave, but loosen them by about half a turn. Upon removal from the autoclave, tighten the caps. The bottles used in the central laboratory are the 60 cc water bottles.

The culture method offers several advantages over animal innoculation. The tests can be run over a longer period of time - eight to ten weeks - thus increasing the possibility of finding the organism. The cultures offer no resistance to the growth of the organism, while the guines pig varies in its susceptibility to infection. When guinea pigs are used, ten to twenty per cent are lost by intercurrent infection, and occasionally an epidemic is likely to occur among the animals which spoils all the tests running at that time. It is true that in cases which present a difficult differential diagnostic problem it is necessary to inject guinea pigs to prove beyond a doubt the identity of acid-fast bacteria in culture. This is a relatively rare occurrence.

PROCEDURES AND PRECAUTIONS TO BE TAKEN ON THE PREMISES OCCUPIED BY A PATIENT HAVING TUBERCULOSIS

CARE OF SPUTUM

1. The patient should spit into a paper sputum cup; this cup and its contents to be burned daily or as often as necessary.

2. The patient should hold a handkerchief or cloth before the mouth when coughing or sneezing.

3. Paper napkins or gauze handkerchiefs which can be burned after use should be used by the patient.

4. The patient should not swallow sputum.

5. If the attendant's or patient's hands become soiled with sputum, they should be washed immediately with plenty of hot water and soap.

6. All articles accidently soiled with sputum should be thoroughly washed with hot water and soap.

7. The patient should not under any circumstances kiss anyone. It is especially dangerous for the patient to kiss children.

8. The patient should not handle food except that intended for his or her own use.

CARE OF PREMISES, EATING UTENSILS AND LINENS

1. Dry sweeping and dusting should be avoided.

2. Dust from any source should be avoided if possible.

3. The patient should be provided with a separate room, preferably a room which admits air and light.

4. The patient should have separate dishes, linens and other articles for personal use, and these should be washed separately.

   Procedure for care of dishes:
   a. Scrape uneaten food from dishes with a piece of paper and burn.
   b. Place unwashed dishes in a pan of boiling water provided for this purpose and boil for 10 minutes.
   c. Wash dishes with soap and water.

   Procedure for washing linens:
   a. Keep the patient's laundry apart from the family laundry.
   b. Boil patient's laundry for 10 minutes.

c. Wash patient's laundry in hot water and soap.
d. Allow to dry in the sun.

Care of clothes, suits and dresses:
Hang clothing out of doors in the sunlight for several days before sending to the dry cleaner.

Care of mattresses, pillows, rugs:
Place out of doors in the sunlight for several days. If they are badly soiled, burn them.

Care of furs, woolens:
Hang out of doors in the sunlight for several days.

Care of books:
Stand the books on edge and fan the pages out so that light and air can get in. Store in a light airy place. Do not use for 6 weeks.

Care of furniture:
Air thoroughly and scrub with hot soapsuds.

IMPORTANT MEASURES TO BE REMEMBERED

1. Dressings removed from tuberculous sinuses, or other surgical wounds, should be burned immediately upon removal. After handling dressings the hands should be washed thoroughly with hot water and soap.

2. Children should not be allowed to come into close contact with a tuberculous patient and should never be allowed to be about the sick room.

3. If it is occasionally necessary for a patient to associate with children, prophylactic measures cannot be too stringently carried out.

4. All members of the patient's family and other household associates should be carefully and periodically examined.

5. How to kill tuberculosis germs outside the human body:
   a. Sunlight----Sunlight, out of doors, kills tubercle bacilli in about 6 hours. In the shade, tubercle bacilli remain alive at least 6 days. In cool, dark, moist places, tubercle bacilli may live for months.

   b. Fire -------Fire kills tubercle bacilli.

   c. Drying------Takes a long time to kill tubercle bacilli. To be on the safe side, exposure in a light airy place for 6 weeks is necessary.

d. Heat--------Heat can be used to kill tubercle bacilli by:
(1) heating in an oven for one hour
(2) using 15 pounds of steam in a pressure cooker for 20 minutes
(3) by boiling for 10 minutes

e. Chemicals---Many disinfectants sold as germ killers do not kill germs, or they often ruin valuable articles long before the germs on the articles are destroyed.

FOLLOW-UP OF CASES, SUSPECTED CASES AND CONTACTS

Ex-Patients:

The follow-up of the post sanatorium patient starts when the discharge summary, with its recommendations, is received from the sanatorium. The patient is to be re-examined at intervals of time as recommended by the sanatorium director for as long a time as seems desirable. From the standpoint of public health and the patient's welfare, there is no particular practical reason for classifying these patients into arrested, apparently arrested, etc. Regardless of their classification at the time of discharge from the sanatorium, they require prolonged supervision, which is a joint responsibility between the department of health and the sanatorium which provided initial treatment. It has been recommended that a specimen of sputum be obtained for examination each time the patient is referred for periodic x-ray studies. The patient's privileges, increasing work capacity and the ability to return to work are the responsibility of the sanatorium director or the private physician or clinic physician to whom the patient has been referred by the sanatorium.

Observation Cases:

These are the cases suspected of having tuberculosis or cases where the activity of the lesion has not been fully established.

The availability of diagnostic measures should keep this group at a minimum. After a reasonable period of observation, the case should be classified as a nontuberculous or tuberculous, and the activity designated if it is tuberculous. The responsibility for definite decisions in these cases is medical and the private physician or sanatorium director should be urged to classify these cases as soon as possible. If hospitalization seems indicated in order to arrive at a diagnosis, this should be provided at once.

When the case has been classified as nontuberculous, the name should be removed from the register. If other medical care is needed, referrals should be made to the proper agency or to a private physician.

Contacts:

Contacts under fifteen years of age yield only a small percentage of the new cases discovered.

Contacts thirty-five years of age and older, with a negative chest at the time of first examination, rarely develop infectious tuberculosis at a later date.

The highest yield of new cases will be found in the family contacts of those cases first discovered shortly before, or at the time of death. The older members of the family, especially the male members, will provide the greatest number of new cases for the number examined.

It is suggested that contacts to the known positive sputum cases or to the patients who have recently died of the disease in the home, be placed in a special group in the tuberculosis contact register. The emphasis should be placed on examining these contacts first.

Suggestions for the examination of contacts (when the infectious case has been removed from the environment.)

1. Children up to 10 years of age should have a tuberculin test and, if the reaction is positive, a chest x-ray. If the film is negative, the case may be closed.

2. Individuals aged fifteen to thirty-five should be x-rayed at once and re-x-rayed annually for at least three years.

3. Adults over thirty-five years of age are discharged if the x-rays show no evidence of pulmonary disease.

TUBERCULOSIS HOSPITALS IN OHIO

COUNTY

Belmont Sanatorium	St. Clairsville, R.R. #3
Butler Co. Temporary TB Hospital	Hamilton
Clark Co. Sanatorium	Springfield, R.R. #6
Edwin Shaw Sanatorium	Akron, R.R.
Franklin Co. Sanatorium	Alum Creek Drive, Columbus
Dunham Hospital	Guerley Rd., Price Hill, Cincinnati
Licking Co. Sanatorium	Newark, R.R. #2
Mahoning Sanatorium	Kirk Rd., Youngstown, R.R. #5
Molly Stark Sanatorium	Canton, Box 367
Pleasant View Sanatorium	North Ridge & Leavitt Rd., Amherst
Richland Co. TB Sanatorium	Mansfield
Sunny Acres	Warrensville
Trumbull Co. Sanatorium	Warren, R.R. #5
Tuscarawas Valley Sanatorium	New Philadelphia, R.R. #1
Wm. Roche Memorial Hospital	Arlington Ave., Toledo

DISTRICT

District TB Hospital	Lima, R.R. #4
Mt. Logan Sanatorium	Chillicothe, Box 398
Stillwater Sanatorium	Dayton, R.R.

PRIVATE

Avalon Sanatorium	Sanatorium Rd., Mt. Vernon
Lake Co. Memorial Hospital	125 Liberty St., Painesville
Oak Ridge Sanatorium	Green Springs
Rocky Glen Sanatorium	McConnelsville

CITY-COUNTY

Lowman Pavilion, City Hospital	Cleveland

MODERN CONCEPTS OF TREATMENT IN TUBERCULOSIS

Tuberculosis control work connotes an understanding and familiarity, not alone of the epidemiological, pathological, and clinical status of the disease, but of the advances in therapeutic procedures as well. The most effective treatment should be given promptly no matter what the stage of the disease.

Photo-fluorography has provided us with a tool with which we have been able to expose the very early lesion, the one which is the most amenable to treatment. Mass population screening has reversed the ratio of early to advanced cases and the employment of proper treatment in these newly found early cases becomes a matter of major importance.

Rest is the main objective in the therapy of tuberculosis and a variety of means are employed to obtain it.

The surgical attack on pulmonary tuberculosis may be accomplished through any of the following general procedures:

1. Collapse
2. Compression
3. Drainage
4. Extirpation

Collapse therapy may be defined as any procedure which will cause a reduction in the volume of the lung. It is employed to close cavities or halt spreading disease which does not respond well to more conservative measures. This may be accomplished by procedures:

a. involving the thoracic wall, e.g., thoracoplasty
b. involving the pleural space, e.g., pneumothorax
c. involving the respiratory mechanism, e.g., phrenic nerve interruption.

Pneumothorax - is indicated in cases of primary tuberculosis if the disease is progressive or cavity is present and the patient does not respond to bed rest. Early lesions are effectively treated by pneumothorax, which is certainly less dangerous to the patient than uncontrolled, unpredictable disease. In approximately 40% of cases pleural adhesions either prevent the induction of pneumothorax or prevent satisfactory collapse. Cutting the adhesions in a good number of cases will result in satisfactory collapse and is accomplished by closed intrapleural pneumolysis. Pneumothorax does not carry a high risk, is a reversible procedure, permits the patient to be ambulatory relatively soon after the initial filling and does not entail mutilation of the thorax. Complications which must be born in mind are accidental puncture of the lung, air embolism, pleurisy with effusion, hemothorax and empyema.

Phrenic paralysis - may be two types - temporary or permanent. Temporary palsy may be achieved by crushing of the phrenic nerve and the diaphragm remains elevated for approximately six months (note: Occasionally phrenic crushing results in permanent paralysis of the diaphragm). Permanent palsy may be achieved by avulsion of the phrenic nerve (exeresis) and is an irreversible procedure. The

indications for this type of therapy are progressive disease, open cavity and preparation of the patient for thoracoplasty. The utilization of crushing or avulsion of the phrenic nerve or pneumothorax as the initial procedure is ofttimes a matter of personal preference of the operator or staff. Pneumoperitoneum is employed by some clinics as an adjunct to the phrenic operation.

Thoracoplasty - is used to close a pulmonary cavity that no other operation can close. (Note: an exception to this statement is that extrapleural pneumonolysis with paraffin filling is capable of closing some cavities for which thoracoplasty would be chosen, but would not be used unless there was some specific contraindication to thoracoplasty.) Some lesser types of collapse therapy may be essential in preparing the patient for thoracoplasty. Preoperative requirements include adequate cardiovascular functional reserve (as determined by recording of B.P., pulse, and respiratory rate at rest, immediately after exercise and two to five minutes after exercise), adequate respiratory functional reserve (as determined by presence or absence of dyspnea and a minimum vital capacity of 2000 to 2400 cc.), no recent exacerbation of the disease and predominately unilateral productive disease. Thoracoplasty may also be used in those cases in which other collapse precedures have failed. Multiple stage, posterolateral operation (the removal of 2 or 3 ribs at each stage) is the most widely used technique. The disadvantages of thoracoplasty are that it is an irreversible, frequently deforming procedure attended by repeated operative risk.

Oleothorax - is the term employed to indicate the intra-pleural injection of oil. Its use is restricted to those cases where it is desirous to maintain collapse against obliterative pleuritis, or to control chronic tuberculous pleuritis complicating pneumothorax. Complications in the use of oleothorax include reaction of pleura to oil, pleural exudate, pleuro-pulmonary perforation, oil pneumonia tuberculosis, needle tract infections, paraffinoma of the thoracic wall, or oil embolism. Oleothorax should not be used when disease in the collapsed lung is progressing, when thin walled cavities or caseous lesions lie near the pleura, when broncho-pleural fistula exists, or when uncomplicated effective pneumothorax can be maintained.

Multiple intercostal nerve paralysis and scaleniectomy - are complementary operative procedures rarely resorted to and are mainly of academic interest. Their chief value is in the preparation of patients who are unsuitable at the time for thoracoplasty and who are unlikely to become suitable without surgical assistance, or in patients with predominately exudative lesions who would eventually require thoracoplasty if these procedures were not available, but to whom the less severe operations offer a good chance of recovery.

Cavity drainage - is indicated chiefly when partial or ball-valve obstruction of its draining bronchus causes stasis of the cavity's secretions with persisting symptoms of severe toxic absorption and persistently open cavity. The types of closed drainage mainly employed are (a) cavernostomy and (b) Monaldi technique. An objection frequently noted is that at the time of withdrawal of the drainage

tube a small residual cavity persists.

Drainage of tuberculous empyema - is more complex than is generally appreciated. There are four absolutely distinct types of the disease and Hedblom has classified them as:

Group I - pure tuberculous empyema without active pulmonary tuberculosis.
Group II - mixed tuberculous and pyogenic empyema without active pulmonary tuberculosis.
Group III - pure tuberculous empyema with active pulmonary tuberculosis.
Group IV - mixed tuberculous and pyogenic empyema with active pulmonary tuberculosis.

In Group I, the purpose of treatment is to stop pus formation and cause expansion of the lung with consequent obliteration of the pleural cavity by adhesions. This can often be accomplished by repeated aspirations.

In Group II, the objectives are to evacuate the pus, sterilize the walls of the empyema and expand the lung. This may be accomplished by repeated aspirations with partial air replacements with or without lavage and installation of antiseptic solutions.

In Group III, the objects of treatment are to stop pus formation and maintain collapse of the actively tuberculous lung. The simplest measure that may succeed is repeated aspiration of pus and air replacement.

In Group IV, the objects of treatment are to evacuate pus, sterilize the cavity and maintain collapse of the diseased lung.

If a brief trial of aspiration fails to do more than temporarily improve the patient, closed or open drainage should be instituted. Phrenic paralysis should be used early to provide relaxation for the diseased lung and lessen the size of the empyema cavity. The recent addition of penicillin to the therapeutic armamentarium shows promise of being an effective agent in the mixed types of infection, thus considerably simplifying the treatment of this most serious complication. If the pyogenic infection can be overcome without tube drainage, the lung should be maintained in collapse by pneumothorax or if this fails, by thoracoplasty.

Extirpation - of the whole lung or total pneumonectomy is a comparatively new procedure; it is usually preformed in one stage and with individual ligation of the hilar vessels and suturing of the bronchus. Graham considers the operation indicated for those cases in which the main bronchus of the diseased lung contains a stricture which prevents adequate aeration and drainage of secretions, cases of persistent thick-walled and uncollapsible cavities and those in which universal tuberculous bronchiectasis exists. Alexander believes too few patients fulfill the conditions that permit a lobectomy or

pneumonectomy. These are open cavities after thoracoplasty, absence of ulcerative bronchial disease, and a good contralateral lung.

THE RECALCITRANT CASE

Disruption of a tuberculosis control program is occasionally due to the activity of certain types of patients who are recalcitrant. Recalcitrants can be arbitrarily divided into two types, true and false. Approximately 90% of recalcitrants may be classified in the latter group; these are patients who refuse sanatorium care because of the pressure of a variety of external factors such as fear, unstable economy, social maladjustments or ignorance. The remaining 10% are true recalcitrants who are either unintelligent or irresponsible and indifferent to the welfare of other people.

From the public health viewpoint the incorrigible case presents a special problem inasmuch as he aids in the perpetuation of the disease in the community by constantly exposing other people to infection. Psychologically the presence of the recalcitrant patient in the community or in the hospital creates a feeling of unrest in his environment and occasionally produces a definite lowering of morale among his associates.

The problem of dealing with these people is rather complex and its solution must come fundamentally through community health education. With the realization by the community of the unnecessary hazard which these individuals present there will be a growing demand for more certain methods of controlling the infectious cases through forcible detention.

(Form used in reporting cases of tuberculosis
to the Ohio Department of Health)

OHIO DEPARTMENT OF HEALTH
COLUMBUS 15, OHIO

DIVISION OF
TUBERCULOSIS

REPORT OF A CASE OF TUBERCULOSIS

Patient's Name ..... Address .....
Last First Middle Street or Rural Route

..... County ....., Veteran: Yes ☐, No ☐.
City, Village, Town

Birth
Date ..... Sex ..... Color ..... Mar. Stat. ..... Legal Residence .....

Occupation: Present ..... Yrs. Previous ..... Yrs.
Type work and industry Type work and industry

Tuberculosis: A) Pulmonary—Primary ☐, Minimal ☐, Mod. Advanced ☐, Far Advanced ☐, Stage Unknown ☐.

B) Pleurisy with Effusion ☐.

C) Other TBC ☐ Location .....

Activity: Active ☐, Quest. Active ☐, Inactive ☐.

Diagnostic Method: X-Ray ☐; Flouroscope ☐; Other ☐; if other, state method: .....

Laboratory Findings: Sputum ☐, Gastric ☐, Not Done ☐. Pos. ☐, Neg. ☐; if positive, date: .....

Method: .....
Smear, Concentrate, Culture, Guinea Pig

Hospitalization: Advised ..... Accomplished ..... Refused ..... : Home ..... PHN Sup'n .....

Date: ..... Reported By: .....

Address: .....

Date of Recording: ..... Health Commissioner: .....

Address: .....

(over)

TBC 7—7-45—10M.

(Instructions for the completion of this form on
pages 27, 28 and 29.)

DIRECTION FOR COMPLETION OF TBC #7
"REPORT OF A CASE OF TUBERCULOSIS"

PATIENT'S NAME:

The last, first and middle name of the patient are entered in this order in the blank space behind this heading.

ADDRESS OF PATIENT:

The number and name of the street are entered on the first line behind this heading. The city, village or town or county are entered in that order on the line below.

BIRTHDATE:

The month, day and year of birth of the patient is entered in the blank space behind this heading.

SEX:

The letter "M" for male and "F" for female are entered in the blank space behind this heading.

COLOR:

The letter "W" for white, "B" for black, or the name of the race written out, may be entered in the blank space behind this heading.

MARITAL STATUS:

The status is usually written out as single, married, widowed, divorced, separated, but may be entered by using the first letter or first two or three letters of the word referred to.

LEGAL RESIDENCE:

Legal residence is established on the knowledge that the patient has had residence in one locality in the State of Ohio for a period of not less than one year. The name of the locality in the State of Ohio should be so indicated in the blank space behind this heading.

OCCUPATION:

The purpose of determining the occupation of the patient is to reveal any present or previous exposure to an occupational hazard. This is particularly important in relation to the dusty trades, such as the following: mines, foundries, ceramic industries, refractories, grinding operations, sand blasting, quarry workers, stone cutters and grinders, or any occupation involving the use of silica. In those instances where the patient gives a history of having worked in one of the above occupations, it is desirable to have a complete chronological work history.

The development of silicosis, which constitutes a serious compli-

cation of tuberculosis, takes place over a period of years, unless the exposure is due to extremely high concentration of silica particles under unusual working conditions. Hence, occupational histories which indicate an exposure to this type of hazard should represent usually, periods of not less than 10 years in the patient's life.

TUBERCULOSIS:

A. This refers to tuberculosis of the lungs and a check mark is made in one of the boxes indicating the stage of the disease.

B. Pleurisy with Effusion: Pleurisy with Effusion is assumed to be tuberculous until proven otherwise. If the patient has this condition, a check mark is made in the box behind the heading.

C. Other tuberculosis: This refers to miliary tuberculosis or to tuberculosis in any part of the body other than the lungs. If the patient has tuberculosis which applies to this category, the location should be indicated in the blank space behind this heading.

ACTIVITY:

The accepted classification by activity employed in the State of Ohio for a case under limited or no observation consists of three categories - active, questionably active and inactive. Every case of tuberculosis falls in one of these categories and should be checked in the appropriate box after the heading.

DIAGNOSTIC METHOD:

This information reveals the method by which the diagnosis is arrived at and a check mark should be made in the box following the appropriate heading. If no entry is made in the space allotted to sputum, we may assume that no sputum examination has been made, however, if a date is entered following that heading and no check mark is placed in either the positive or negative box, the report will be returned for completion.

HOSPITALIZATION:

The sub-headings Advised, Accomplished or Refused should be checked in order that this information may be available to local governmental agencies. The heading PHN Supervision is likewise of importance to local governmental agencies.

DATE:

The month, day and year of the report should be entered following this heading.

The name and address of the reporting physician, nurse or other agency should be entered following the heading Reported By and Address,

Date of Recording should be entered as month, day and year by the health commissioner who signs his name and address after the appropriate heading.

Sec. 1232. (State department of health; powers and duties.) There is hereby created a state department of health, which shall exercise all the powers and perform all the duties now conferred and imposed by law upon the state board of health and all such powers, duties, procedure and penalties for violation of its sanitary regulations shall be construed to have been transferred to the state department of health by this act. The state department of health shall exercise such further powers and perform such other duties as are herein conferred. The state department of health shall consist of a commissioner of health and a public health council. (107 v. 522).

Sec. 1233. (Director of health; appointment, qualifications, term, duties.) The director of health shall perform all executive duties now required by law of the state board of health and the secretary of the state board of health, and such other duties as are incident to his position as chief executive officer. He shall administer the laws relating to health and sanitation and the regulations of the state department of health. He shall prepare sanitary and public health regulations for consideration by the public health council and shall submit to said council recommendations for new legislation. The director of health shall sit at meetings of the public health council but shall have no vote. (118 v. 387).

Sec. 1234. (Public Health Council; etc.)

Sec. 1235. (Powers and duties.) It shall be the duty of the public health council and it shall have the power:

(a) To make and amend sanitary regulations to be of general application throughout the state. Such sanitary regulations shall be known as the sanitary code.

(b) To take evidence in appeals from the decision of the director of health in a matter relative to the approval or disapproval of plans, locations, estimates of cost or other matters coming before the director of health for official action. In the hearing of such appeals the director of health may be represented in person or by the attorney general.

(c) To conduct hearings in cases where the law requires that the state department of health shall give such hearings; to reach decisions on the evidence presented, which shall govern subsequent actions of the director of health with reference thereto;

(d) To prescribe by regulations the number and functions of divisions and bureaus and the qualifications of chiefs of divisions and bureaus within the state department of health;

(e) To enact and amend by-laws in relation to its meetings and the transaction of its business;

(f) To consider any matter relating to the preservation and improvement of the public health and to advise the state director of health thereon with such recommendations as it may deem wise.

The public health council shall not have nor exercise executive or administrative duties. (118 v. 388).

Sec. 1237. (General powers and duties.) The state board of health shall have supervision of all matters relating to the preservation of the life and health of the people and have supreme authority in matters of quarantine, which it may declare and enforce, when none exists, and modify, relax or abolish, when it has been established. It may make special or standing orders or regulations for preventing the spread of contagious or infectious diseases, for governing the receipt and conveyance of remains of deceased persons, and for such other sanitary matters as it deems best to control by a general rule. It may make and enforce orders in local matters when emergency exists, or when the local board of health has neglected or refused to act with sufficient promptness or efficiency, or when such board has not been established as provided by law. In such cases the necessary expense incurred shall be paid by the city, village or township for which the services are rendered. (99 v. 493).

Sec. 1237-3. (Authority to receive funds.) The treasurer of the state of Ohio is hereby authorized to receive all funds from the treasury of the United States, granted to the state of Ohio and apportioned for the purpose of said act, and said treasurer of the state of Ohio is hereby authorized and directed to pay over such funds to the state department of health to be expended in accordance with the terms of the aforesaid act of congress. (110 v. 331).

Sec. 1238. (Enforcement of rules and regulations.) Local boards of health, health authorities and officials, officers of state institutions, police officers, sheriffs, constables and other officers and employees of the state or any county, city or township, shall enforce the quarantine and sanitary rules and regulations adopted by the state board of health. (99 v. 493).

Sec. 3139. (Supervision of tuberculosis hospitals; approval of location and plans; formation of district.) The state department of health shall have general supervision of all sanatoria, hospitals and other institutions engaged in the maintenance, care and treatment of persons suffering from tuberculosis, and shall formulate and enforce such rules and regulations for their government as it may deem necessary. By maintenance, care and treatment is meant proper housing and nutrition, the use of approved and modern medical and surgical methods of treatment, skilled nursing attention, and such educational and pre-vocational rehabilitation, or other services, as the medical superintendent of each tuberculosis institution may prescribe. The location, plans and estimates of cost for all municipal, county and district hospitals for tuberculosis, and additions thereto, shall be submitted to and shall be approved by the state department of health. The formation of a district for the purpose of providing a hospital for the care and treatment of tuberculosis, for additions thereto, or for withdrawals therefrom, shall be submitted to and be approved by the state department of health. (119 v. 721).

Sec. 3139-1. (Commissioners of two or more counties may establish district tuberculosis hospital; procedure.) The commissioners of any two or more contiguous counties, not to exceed five, may, and upon the favorable vote of the electors thereof in the manner hereinafter provided, shall form themselves into a joint board for the purpose of constructing, equipping and maintaining a district hospital for the care and treatment

of persons having tuberculosis, provided, that no county in which there is a municipal or county tuberculosis hospital shall be included in any such district. Provided, however, that districts now existing containing more than five counties may continue in existence under all the provisions of this act. If the boards of county commissioners fail to provide for the care of the tuberculous, two per cent of the electors of any proposed joint district may file a petition with the board of deputy state supervisors of elections of the most populous county in such proposed district, designating the counties in such district. Such board shall at once certify such fact to the election boards of the counties comprising such proposed district and such proposition shall be placed on the ballot at the next special or general election occurring more than sixty days after the filing of such petition. If a majority of the electors voting on the proposition in each county of the proposed district vote in favor thereof, such district shall be established. After the establishment of such joint district, either by voluntary action of the commissioners or as the result of such election, such joint board of county commissioners shall provide a site or the necessary funds for the purchase of a site, and also shall provide the necessary funds for the acquisition, erection and equipment of the necessary buildings thereon. Such expenses as may be incurred by the county commissioners in meeting with the commissioners of other counties for consideration of the proposal to establish a district tuberculosis hospital shall be paid from the general fund of the county. After the organization of the joint board such expenses shall be paid from the fund provided for the erection and maintenance of such hospitals. (119 v. 721.)

Sec. 3139-2. (Facilities available to patients residing within and without the district.) The district hospital for tuberculosis shall be devoted to the care and treatment of those persons afflicted with tuberculosis who are residents of the district and who are in need of hospital care and treatment, provided that if facilities are available and not used by such residents, trustees of such hospital may contract for the care of patients from counties not included in the district. (119 v. 722.)

Sec. 3139-3. (Management and control vested in board of trustees; appointment; term; removal; organization; meetings; annual report.) As soon as possible after organization, the joint board of county commissioners shall appoint a board of trustees in whom shall be vested the management and control of such district tuberculosis hospital, said board to consist of one member from each county in the district. Each trustee shall serve for a term of office equal to the number of counties in the district, provided, however, the term of office of the members first appointed shall be so fixed that the term of office of one member will expire each year. Annually thereafter, except to fill vacancies, the joint board of county commissioners shall appoint one member to the board of trustees upon the expiration of each term. A trustee shall hold his office until his successor has been appointed and has qualified. Any vacancy shall be filled by an appointment in like manner for the unexpired term of the original appointment. The joint board of county commissioners may remove any trustee for good and sufficient cause after a hearing upon written charges. As soon as the board of trustees has been appointed it shall meet and organize by electing one of its members as chairman and another member as chairman pro tem. Annually, thereafter, at the regular monthly meeting in January a chairman and chairman pro tem

shall be elected. The board shall also select a secretary who shall serve during the pleasure of the board. Such board of trustees shall meet monthly, and at such other times as they deem necessary. On the third Monday of March in each year such board of trustees shall file with the joint board of county commissioners, and with the state department of health, an annual report of the operation of such district hospital, including a statement of all receipts and expenditures during the preceding calendar year. The trustees shall serve without compensation, but their necessary expenses when engaged in the business of the board shall be paid. (119 v. 722.)

Sec. 3139-4. (Selection of site, plans, etc; gifts, bequests, etc.) Subject to the provisions of this act, such board of trustees shall select a site, prepare plans and specifications and proceed to acquire or erect and equip the necessary buildings for a district tuberculosis hospital. In the selection and acquirement of a site for a district tuberculosis hospital the board of trustees shall have the same powers in the appropriation of lands as are conferred upon boards of county commissioners. They may receive and hold in trust for the use and benefit of such institution any grant or devise of land, and any donation or bequest of money or other personal property that may be made for the establishment or support thereof. (119 v. 723.)

Sec. 3139-5. (Apportionment of cost of construction, etc.; county commissioners may borrow money; interest; annual statement.) The first cost of the hospital, and the cost of all betterments, repairs and additions thereto, as determined by the board of trustees, shall be paid by the counties comprising the district, in proportion to the taxable property of each county as shown by their respective duplicates. To meet the expense incurred in the purchase of a site or enlargement thereof, and for the erection and equipment of buildings, or for the purpose of enlarging, improving or rebuilding thereof, or for purchasing an interest in a district tuberculosis hospital, the commissioners may borrow such sum or sums of money as may be apportioned to the county, at a rate of interest not to exceed five per cent per annum, and issue and sell the bonds of the county to secure the payment of the principal and interest thereof. Such principal and interest shall be paid as provided in section 2293-8 of the General Code. A statement shall be prepared annually showing the per capita daily cost for the current expenses of maintaining such hospital, including the cost of ordinary repairs, and each county in the district shall pay its share of such cost as determined by the number of days the total number of patients from such county have spent in the hospital during the year, but any sums paid by the patients from such county for their treatment therein shall be deducted from this amount. The boards of county commissioners of counties jointly maintaining a district hospital for tuberculosis shall make annually an appropriation or otherwise provide sufficient funds to support, and to defray the necessary expense, of maintenance of such hospital. (119 v. 723.)

Sec. 3139-6. (Taxes collected, when and where deposited; disbursement and use of funds; bond of trustees.) All taxes levied by the county commissioners of any county under the provisions of section 6 (G. C. 3139-5) of this act shall, when collected, be paid over to the trustees of the district tuberculosis hospital upon the warrant of the county auditor, at the same time that school and township moneys are paid to the respective treasurers; and the board of trustees shall receipt therefor and deposit

said funds to its credit in banks or trust companies to be designated by it and said banks or trust companies shall give to said board, a bond therefor in an amount at least equal to the amount as so aforesaid deposited; and thereupon said funds may be disbursed by said board of trustees for the uses and purposes of said district tuberculosis hospital, and accounted for as provided in the foregoing sections. Each trustee shall give bond for the faithful performance of his duties in such sum as may be fixed by the joint board of county commissioners. The expense of such bond shall be paid out of the fund for the maintenance of the hospital. The bond of each trustee, after having been approved by the joint board of county commissioners, shall be filed with the auditor of the county which he represents. (119 v. 724.)

Sec. 3139-7. (Admission of additional counties to district; limitation; procedure for admission.) After a tuberculosis hospital has been established additional counties may be admitted to the district, but the total number of counties in any such district shall not exceed five. Such addition may be made on the recommendation of the board of trustees and by a majority vote of the joint board of county commissioners. Before a county is admitted to the district the county commissioners of such county and the joint board of county commissioners shall agree upon the terms and conditions by which such county is to be admitted to the district. Such agreement shall be in writing and shall be entered in full in the minutes of the county commissioners and of the joint board. Any county so admitted to a district shall be represented by one member on the board of trustees and shall have the same powers, duties and obligations as a county joining the original district. (119 v. 724.)

Sec. 3139-8. (Withdrawal of county from district; procedure.) Any county within a tuberculosis hospital district which desires to withdraw from said district may, with the consent of the state department of health, dispose of its interest in said district hospital by selling same to any county or counties in said district at a price fixed by a board of appraisers composed of the county auditors of the counties of the district and said auditors shall, upon application made to them by the board of county commissioners of any county which desires to so withdraw from the hospital district, constitute themselves as such board of appraisers for determining the price to be paid said county for its interest. (119 v. 724.)

Sec. 3139-9. (Equitable apportionment of expense for new site, hospital, etc.; petition; hearing.) Whenever, after any district tuberculosis hospital has been destroyed or become inadequate for the needs of the district or has been established and operated for a continuous period of five or more years, and the board of trustees of such hospital decides that a new site, a new hospital building or buildings, betterments and additions to an existing building or buildings, or new equipment has or have become necessary, any county in the district may complain by proper petition to the court of common pleas of the county in which said district tuberculosis hospital is located, stating that it is unjust and inequitable that such complaining county should pay for the said expense incurred or to be incurred in proportion to its taxable property, as provided for in foregoing sections of this act. In such petition the complaining county shall be the plaintiff and all other counties of said district shall be defendants, and each county shall be required to answer said petition within the ordinary answer day required in civil actions. Upon answer or in default thereof, the matter shall come up for hearing before said

court of common pleas and upon full hearing said court of common pleas may make such order of apportionment of said expense between the counties as may be just, proper and equitable, and thereupon such order shall be binding as between the counties, and in lieu of the apportionment prescribed by foregoing sections of this act. (119 v. 725.)

Sec. 3139-10. (Appointment of medical superintendent, physicians, nurses, etc.; compensation; duties of superintendent; payment of cost of care and treatment of patients.) The board of trustees of a district tuberculosis hospital shall appoint a qualified physician as a medical superintendent, who shall not be removed, except for cause. Said superintendent or a qualified medical assistant shall serve on a full time basis, except in such hospitals having less than fifty beds. Upon the recommendation of said medical superintendent, said board of trustees shall appoint other physicians and nurses for service within and without the hospital, and such other employees as may be necessary for the proper operation of the hospital. Such trustees shall fix the compensation of the medical superintendent, physicians, nurses and all other employees. Subject to the rules and regulations prescribed by the state department of health and the board of trustees, the medical superintendent shall have entire charge and control of the hospital. The medical superintendent shall investigate all applicants for admission to the hospital for tuberculosis and may require satisfactory proof that they have tuberculosis and are in need of hospital care. The board of trustees may require from any applicant admitted from the county or counties maintaining the hospital, payment not exceeding the actual cost of care and treatment, including the cost of transportation, if any. If, after investigation, it shall be found that any such applicant or patient or any person legally responsible for his support is unable to pay the full cost of his care and treatment in the district hospital, the board of trustees shall determine the amount, if any, said applicant, or patient or any such person legally responsible for his support, shall pay. The difference between such amount, if any, and the actual cost of care and treatment shall be paid by the county in which such applicant or patient has a legal residence. The amount so determined shall be paid on the order of the county commissioners. An accurate account shall be kept of moneys received from patients, or from other sources, which shall be applied toward the payment of maintaining the district tuberculosis hospital. (119 v. 725.)

Sec. 3139-11. (County tuberculosis hospital established, when and how; gifts, bequests, etc.) The county commissioners of any county having more than 50,000 population as shown by the last federal census may, with the consent of the state department of health, provide the necessary funds for the purchase of a site or sites and the erection and equipment of the necessary buildings thereon, for the operation and maintenance of one or more county hospitals for the care and treatment of persons suffering from tuberculosis, and for the purchase or lease of one or more municipal tuberculosis hospitals located in said county. The county commissioners maintaining a county tuberculosis hospital may receive for the use of such hospital, and in its name, gifts, legacies, devises and conveyances of real or personal property or money. (119 v. 726.)

Sec. 3139-12. (Annual appropriation for maintenance; repairs.) In any county where a county hospital for tuberculosis has been purchased, leased or erected, such county hospital for tuberculosis shall be main-

tained by the county commissioners, and for the purpose of maintaining such hospital the county commissioners shall annually appropriate and set aside the sum necessary for such maintenance. Such sum shall not be used for any other purpose. When it shall become necessary to enlarge, repair or improve a county hospital for tuberculosis, the county commissioners shall proceed in the same manner as provided for other county buildings. (119 v. 726.)

NOTE: Supplemental section 5625-15a, of the General Code, effective July 9, 1941, authorizes the county commissioners to provide additional funds for tuberculosis hospitals by the levy of a special tax outside the ten mill tax limitation when sufficient funds cannot be appropriated from the county general fund. The levy may not exceed sixty-five hundredths of a mill and requires a majority vote of the electors. (119 v. 55.)

Sec. 3139-13. (Management and control vested in board of trustees; appointment; powers; hospital funds disbursed by trustees; bond; annual report.) The management and control of such county tuberculosis hospital shall be vested in a board of trustees consisting of three members who shall be appointed by the county commissioners for a term of three years, provided that of the appointments first made, one shall be for one year, one for two years, and one for three years, and thereafter one shall be appointed annually on the first day of April for a term of three years. All vacancies shall be filled by the county commissioners for the unexpired term. Such board of trustees shall have all the powers conferred by law upon the board of trustees of a district hospital for the care of persons suffering from tuberculosis. Provided that in hospitals of less than fifty beds the board of county commissioners may serve as a board of trustees. All laws applicable to the levy of taxes for the purchase, lease, erection, maintenance, betterments, repairs and operation of a district hospital shall apply to the leasing, erection, operation, maintenance, betterments and repairs of said county hospital for the care and treatment of persons suffering from tuberculosis, and all taxes collected pursuant to levy made for such purpose, and all appropriations made for the maintenance and operation of such hospital may be paid over to the trustees of the county hospital and deposited and expended by them in the same manner as is provided by section 3139-6, as to taxes levied and collected for the use of the trustees of a district hospital. The provisions of section 3139-6 requiring trustees of district hospitals to give bond for the faithful performance of their duties and providing the manner in which such bond shall be given, shall be applicable to trustees of a county hospital. An accurate account shall be kept of all moneys received from patients or from other sources, which shall be applied toward the payment of maintaining the tuberculosis hospital. The board of trustees shall, on the first Monday in February of each year, file with the county commissioners and with the state department of health an annual report of the operation of the county tuberculosis hospital including a statement of receipts and disbursements during the past calendar year. (120 v. 245.)

Sec. 3139-14. (County joined in erection of district hospital may erect and maintain county tuberculosis hospital, when; issuance of bonds; repairs.) In any county having a population of 50,000 or over at the last federal census which has joined in the erection of a district tuberculosis hospital and if in such hospital there is not sufficient capacity to afford suitable accommodations for all cases of tuberculosis that should be hos-

pitalized, and if the trustees of such district tuberculosis hospital or the joint board of county commissioners fail or refuse to provide additional accommodations in such hospital, the county commissioners of such a county may, with the consent of the state department of health, erect and maintain a county tuberculosis hospital. The county commissioners may issue bonds for the purpose of constructing such county hospital and shall annually appropriate and set aside the funds necessary for its maintenance. Such funds shall not be used for any other purpose. When it shall become necessary to enlarge, repair, or improve any such county hospital for tuberculosis, the county commissioners shall proceed in the same manner as provided for other county buildings and subject to the provisions of section 1 (G.C.3139), of this act. (119 v. 727.)

Sec. 3139-15. (Use of funds; management and control of hospital.) When bonds have been authorized, or funds secured, for the purpose of erecting or maintaining a county hospital for tuberculosis as provided for in section 15 (G.C.3139-14) of this act, such funds may be used in purchasing the right, title and interest of any or all counties that may have joined in the erection and maintenance of a district hospital for the care and treatment of tuberculosis. The management and control of such tuberculosis hospital shall be vested in a board of trustees as provided for in section 14 (G.C.3139-13) of this act. Such board of trustees shall have all the powers conferred by law upon the board of trustees of a district hospital for tuberculosis, and all laws applicable to the appointment of employees and to the levy of taxes for the erection, operation and maintenance of a district hospital for tuberculosis, shall apply to said county hospital. (119 v. 727.)

Sec. 3139-16. (Tuberculosis clinics.) The board of trustees of a district hospital for tuberculosis or the board of trustees of a county hospital for tuberculosis, may,with the consent of the state department of health, establish and maintain one or more tuberculosis clinics, and employ such persons as are necessary properly to operate same. Such clinics may be under the supervision of a city or general district board of health within the county. (119 v. 728.)

Sec. 3139-17. (Employees may attend conferences, etc.; expenses.) The board of trustees or officer in charge of such hospital or clinic may authorize any employees of any municipal, county or district hospital for tuberculosis or of a tuberculosis clinic to attend conferences where the care, treatment or prevention of tuberculosis are subjects for consideration and which are of such nature as to add to the technical skill and knowledge of such employees. The necessary expenses incurred in attendance at such conferences shall be paid from the maintenance fund of such hospital or clinic. (119 v. 728.)

Sec. 3139-18. (County commissioners may contract for care, etc., of patients, when.) Where a county has not provided a county hospital for tuberculosis or has not joined in a tuberculosis hospital district, or where a county tuberculosis hospital is not sufficiently large to provide proper care for all patients who should be hospitalized, the county commissioners may contract with the board of trustees of a county or district tuberculosis hospital, or with the proper officer of a municipal tuberculosis hospital, for the care, treatment and maintenance of residents of the county who are suffering from tuberculosis. The commissioners of the

county in which such patients reside shall pay to the board of trustees of such county or district hospital, or into the proper fund of the municipality caring for such patients, the amount provided for in the contract. They shall also pay for the transportation of patients and attendants. The county commissioners of such county may also contract for the care and treatment of residents of the county suffering from tuberculosis with a general hospital properly equipped both as to personnel and facilities for the care and treatment of the tuberculous, or with a person, firm, association or corporation operating a hospital exclusively for the care and treatment of the tuberculous; but no contract shall be made unless such general hospital or private hospital has been inspected and approved by the state department of health. Such approval may be withdrawn and such contract shall be cancelled, if, in the judgment of the state department of health, such general hospital or private hospital is not properly managed. If such approval is withdrawn, the person, firm, association, or corporation operating such institution shall have the right to appeal to the public health council for a decision. (119 v. 728.)

Sec. 3139-19. (Tuberculosis clinics established, etc., by county commissioners, when; control and supervision.) In such counties as do not operate a county hospital for tuberculosis, or in such counties as have joined in the construction of a district tuberculosis hospital and in which district the joint board of county commissioners shall fail or refuse to maintain tuberculosis clinics as provided in section 17 (G.C.3139-16) of this act, the county commissioners of any such county may establish and maintain one or more tuberculosis clinics in the county and may employ physicians, public health nurses and other persons for the operation of such clinics or other means provided for the prevention, cure and treatment of tuberculosis and may provide by tax levies, or otherwise, the necessary funds for their establishment, maintenance, and operation. Clinics so established shall be under the control of the board of county commissioners and shall be supervised by a board of three trustees similar in all respects to and with all the powers enjoyed by a board of trustees of a county tuberculosis hospital; or by a city or general district board of health within the county as the board of county commissioners may designate. (119 v. 728.)

Sec. 3139-20. (Removal when menace to public, how made; notice to other state; expense of removal and maintenance, how paid.) The board of health, upon a proper presentation of the facts, and upon the recommendation of the health commissioner of a city or general health district, shall have authority to order removed to a municipal, county or district hospital for tuberculosis, any person suffering from pulmonary tuberculosis, when in its opinion such person is a menace to the public health, and cannot receive suitable care and treatment at home; provided, however, that such person shall have the right to remove from the state. If such person shall remove from the state it shall be the duty of the health commissioner to notify immediately the health authorities of the state to which removal was made. The expense of removal of such person to a tuberculosis hospital and for his care, treatment and maintenance therein shall be paid by such person or by those legally responsible for the cost of his care, treatment and maintenance. The expense of removal, care, treatment and maintenance shall be paid by the county in which he has legal residence, if such person is unable to provide therefor. (120 v. 279.)

Sec. 3139-21. (Tubercular cases may not be kept in county home; removal; expense.) No person suffering from active tuberculosis shall be kept in any county home. Whenever complaint is made that a person is being kept or maintained in any county home in violation of the requirements of this section, the state department of health shall make arrangements for the care, treatment and maintenance of such person in a tuberculosis hospital which has been approved by the state department of health. The cost of removal of such person to, and the cost of care, treatment and maintenance of such person in such hospital or institution shall become a legal charge against, and shall be paid by the county in which such person has a legal residence. If such person is not a legal resident of this state, then such expense shall be paid by the county maintaining the county home. Such patient shall be transferred to his legal domicile as soon as he is able to be removed, as determined by the medical superintendent of the hospital. Provided that such removal shall not be made without the consent of the inmate unless a suitable place outside the county home, approved by the state department of health, is provided for his care and treatment, or proper arrangements are made for his transfer to the state of his residence. (119 v. 729.)

Sec. 3139-22. (Board of trustees may establish record bureau; cases of tuberculosis to be reported.) The board of trustees of each district hospital and of each county hospital may establish a record bureau and appoint a director thereof and appoint such assistants as may be required to keep and maintain adequate records with respect to all known cases of tuberculosis within the county. It shall be the duty of all tuberculosis hospitals, tuberculosis clinics, general and private hospitals within the county, and all boards of health within the county to immediately report all cases of tuberculosis, which are or have become known to them, to such county record bureau and to supply it with such data with respect to such cases and with respect to the persons who live or work in close contact with such cases as it may request. (120 v. 246.)

Sec. 5625-15a. (Tax levy for tuberculosis hospital.) The board of county commissioners of any county, at any time prior to September 15 in any year, after providing the normal and customary percentage of the total general fund appropriations for the support of tuberculosis hospitals, by vote of two-thirds of all the members of said board may declare by resolution that the amount of taxes which may be raised within the ten-mill limitation will be insufficient to provide an adequate amount for the support of tuberculosis hospitals, and that it is necessary to levy a tax in excess of the ten-mill limitation to supplement such general fund appropriations for such purpose, but the total levy for this purpose shall not exceed sixty-five one hundredths of a mill.

Such resolution shall conform to the requirements of section 5625-15 of the General Code and be certified and submitted in the manner provided in section 5625-17 of the General Code.

If the majority of electors voting on a levy to supplement general fund appropriations for the support of tuberculosis hospitals vote in favor thereof, the board of county commissioners of said county may levy a tax within such county at the additional rate outside the ten-mill limitation during the period and for the purpose stated in the resolution or at any less rate or for any of the said years. (119 v. 55.)

Sec. 4427. (Duty to give notice of prevalence of infectious diseases.) Each physician or other person called to attend a person suffering from smallpox, cholera, plague, yellow fever, typhus fever, diphtheria, membranous croup, scarlet fever, or typhoid fever, or any other disease dangerous to the public health, or required by the state board of health to be reported, shall report to the health officer within whose jurisdiction such person is found, the name, age, sex and color of the patient, and the house and place in which such person may be found. In like manner, the owner or agent of the owner of a building in which a person resides who has any of the diseases herein named or provided against, or in which are the remains of a person having died of any such disease, and the head of the family, immediately after becoming aware of the fact, shall give notice thereof to the health officer. (95 v. 427.)

Sec. 4428. (Duty of board thereafter.) When complaint is made or a reasonable belief exists that an infectious or contagious disease prevails in a house or other locality which has not been so reported, the board shall cause such house or locality to be inspected by its health officer, and on discovering that such infectious or contagious disease exists, the board may, as it deems best, send the person so diseased to a quarantine hospital or other place provided for such persons, or may restrain them and others exposed within such house or locality from intercourse with other persons, and prohibit ingress and egress to or from such premises. (95 v. 427.)

Sec. 4429. (Communicable diseases to be quarantined.) When a case of smallpox, cholera, plague, yellow fever, typhus fever, diphtheria, membranous croup, scarlet fever or other communicable diseases declared by the board of health or state department of health to be quarantinable is reported within its jurisdiction, the board of health shall at once cause to be placed in a conspicuous position on the house wherein such disease occurs a quarantine card having printed on it in large letters the name of the disease within, and prohibit entrance to or exit from such house without written permission from the board of health, or shall enforce such restrictive measures as may be prescribed by the state department of health. No person shall remove, mar, deface, or destroy such quarantine card, which shall remain in place until after the patient has been removed from such house, or has recovered and is no longer capable of communicating the disease, and the house and the contents thereof have been properly purified and disinfected by the board of health or treated in such manner as may be prescribed by the state department of health. (108 v. Pt. 1, 249.)

Sec. 4430. (Physicians to use precautionary measures; quarantine regulations, to whom they apply.) Each physician attending a person affected with any such disease shall use such precautionary measures to prevent the spread of the disease as is required by the board of health. No person quarantined by a board of health on account of having a contagious disease or for having been exposed thereto, shall leave such quarantined house or place without the written permission of the board of health, and where other inmates of such house have been exposed to and are liable to become ill of any such diseases, for such period thereafter as may be pre-

scribed in the rules and regulations of the state department of health. (108 v. Pt. 1, 249.)

Sec. 4431. (Board may employ guards.) The board of health may employ as many persons as it deems necessary to execute its orders and properly guard any house or place containing any person or persons affected with any of the diseases named herein, or who have been exposed thereto, and such persons shall be sworn in as quarantine guards, shall have police powers, and may use all necessary means to enforce the provisions of this chapter for the prevention of contagious or infectious disease, or the orders of any board of health made in pursuance thereof. (95 v. 427.)

Sec. 4436. (Board of health to provide for persons quarantined; expenses, by whom paid.) When a house or other place is quarantined on account of contagious diseases, the board of health having jurisdiction shall provide for all persons confined in such house or place, food, fuel, and all other necessaries of life, including medical attendance, medicine and nurses when necessary. The expenses so incurred, except those for disinfection, quarantine or other measures strictly for the protection of the public health, when properly certified by the president and clerk of the board of health, or health officer where there is no board of health, shall be paid by the person or persons quarantined, when able to make such payment, and when not, by the municipality or township in which quarantined. (108 v. Pt. 1, 249.)

Sec. 4456. (Quarantine hospital.) A municipality may establish a quarantine hospital within or without its limits. If without its limits, the consent of the municipality or township shall be first obtained, but such consent shall not be necessary if the hospital is more than eight hundred feet from any occupied house or public highway. When great emergency exists, the board of health may seize, occupy and temporarily use for a quarantine hospital, a suitable vacant house or building within its jurisdiction. The board of health of a municipality having a quarantine hospital, shall have exclusive control thereof. (95 v. 430.)

Sec. 12785. (Exposure in public, having contagious disease; giving or selling articles in charge of such person; penalty.) Whoever, while suffering from smallpox, cholera, plague, yellow fever, diphtheria, membranous croup, scarlet fever or other dangerous contagious disease, wilfully or unlawfully exposes himself in a street, shop, inn, theater or other public place or public conveyance, or, being in charge of a person so suffering, so exposes such sufferer, or gives, lends, sells, transmits or exposes without previous disinfection by the board of health bedding, clothing, rags, or other thing, which has been exposed to infection from such disease, or knowingly lets for hire a house, room or part of a house in which a person has been suffering from such disease, prior to the disinfection thereof by the board of health, shall be fined not more than one hundred dollars or imprisoned not more than ninety days, or both. (108 v. Pt. 1, 250.)

EDUCATION

Sec. 4836-6. (Schools for tubercular children.) The board of education of any city school district may establish such special schools as it

deems necessary for youth of school age who are afflicted with tuberculosis, and may cause all youth, within such district, so afflicted, to be excluded from the regular schools, and may provide for and pay from the school funds, the expense of transportation of such youth to and from such special schools. The board of education of any city, exempted village or local school district in which is located a state, district, county, or municipal hospital for children with tuberculosis or epilepsy shall make provision for the education of all educable children therein. Except that in the event another school district within the same county is the source of sixty per cent or more of the children in said hospital, the board of education of that school district shall make provision for the education of all the children therein. In either case the board of education which provides the educational facilities shall be entitled to all moneys authorized for the attendance of pupils as provided in sections 4848-1, 4848-3 and 4848-4 of the General Code; and tuition as provided in section 4848-5 of the General Code; and such additional compensation as is provided for crippled children in sections 4850 to 4850-10 of the General Code. (121 v. 199.)

RESTAURANT SANITATION

Sec. 843-6. (Employees must be free from certain diseases.) No person suffering from or afflicted with tuberculosis, a venereal or a contagious disease shall be employed in or about any part of a restaurant or its kitchen, or handle food stuffs or products used therein, and the state fire marshal or his deputies shall have the power to compel a person handling food stuffs in any restaurant or hotel to present a certificate from a reputable physician showing him or her to be free from any infectious or contagious disease. (108 v. 290.)

Regulation 55. (Definition). The term tuberculosis hospital as used in these regulations is defined to be a hospital, institution or place which receives, with or without compensation, children or adults for professional care, medical or nursing, because of tuberculosis. This term shall include a hospital, institution or place operated and maintained for the exclusive purpose of caring for children or adults with tuberculosis and that portion of a general hospital in which are operated and maintained wards or sections for this purpose.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 56. (Inspection and Certificate of approval).

1. An annual inspection and such other inspections as may be required of each and every tuberculosis hospital shall be made by the state director of health or by his duly authorized representative.

2. A certificate of approval signed by the state director of health and sealed with the official seal of the state department of health shall be issued to each and every tuberculosis hospital when the annual inspection indicates that it has complied with the laws governing such hospitals and with the rules and regulations of the state department of health.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 57. (General Facilities).

1. The building shall be free from fire and safety hazards and shall be constructed and maintained in accordance with the provisions of the Ohio Building Code and the specific requirements as adopted by the Department of Industrial Relations. Regular fire control instructions and inspections shall be provided. Inflammable supplies shall be stored in conformity to the regulations of the National Board of Fire Underwriters.

2. The water supply and sewage disposal shall be installed and maintained as required by state law and regulations of the Ohio Sanitary Code.

3. All wastes shall be properly disposed of and all garbage and trash shall be kept in suitable receptacles, in such manner as not to become a nuisance.

This item shall be deemed to have been satisfied if:

a. All garbage is kept in tight non-absorbent, and easily washable receptacles which are covered with close-fitting lids while pending removal.
b. All garbage, trash and other waste material are removed from the premises as frequently as may be necessary to prevent nuisance and unsightliness and are disposed of in a manner approved by the health commissioner.
c. All garbage receptacles are washed when emptied and treated with a disinfectant if necessary, to prevent nuisance.
d. All patient's garbage shall be cooked before feeding to livestock or shall be incinerated.

4. There shall be efficient arrangements for sufficient artificial light, heat, power and hot water.

5. There shall be adequate protection against insects and vermin.

6. All patient's laundry should be cared for within the hospital or other available facilities by a method acceptable to public health authorities.

7. There shall be sufficient and suitable furnishings and equipment.

8. There shall be sufficient and suitable space and equipment for administrative purposes.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 58. (Quarters for Employees). Such living quarters on the hospital premises as are provided for resident physicians, nurses and other personnel shall be ample, comfortable and convenient.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 59. (Accommodations for Patients).

1. There shall be ample provision for proper bed treatment. There shall be at least 50 per cent of the total beds for adult patients.

2. There shall be a sufficient number of separate rooms for observation, isolation and moribund cases.

3. There shall be suitable and sufficient sanitary toilets, lavatories, dental bowls and bathing facilities. Utility rooms shall be conveniently located.

4. There shall be not less than 800 cubic feet of air space for each patient. Adjacent beds shall not be less than four feet apart nor the minimum floor space per bed less than 70 square feet.

5. There shall be adequate provision for proper ventilation and protection against excessive sun and inclement weather.

6. There shall be a sufficient number of heated dressing rooms.

7. There shall be ample and suitable provision for the custody of personal property of patients.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 60 (Food Service).

1. There shall be well-equipped and sufficiently large kitchens and dining rooms; equipment for proper sterilization of dishes and tableware; ample day and bulk storage facilities for food supplies with sufficient refrigeration convenient to the main kitchen.

2. There shall be suitably equipped diet kitchens for the proper serving of food.

3. Space used for the storage, preparation and consumption of food shall be adequately protected against insects and vermin.

4. Food shall be of good quality, ample quantity, varied, well-cooked and hot food shall be served hot.

5. Persons shall not be handlers of food who are a menace to others because of disease in a communicable form or an infestation.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 61. (Annual Reports). The annual reports required of the board of trustees, managers, commissioners or owners of a tuberculosis hospital shall include such information relative to identification, building facilities, general facilities, professional departmental data, special services, personnel data, cash income, operating expense detail (including all receipts and expenditures) and assets and liabilities as may be required by the state director of health.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 61-1 (Notice of admission of patients). Within not more than five days after definite diagnosis of tuberculosis is made, the medical superintendent or other person in charge of such hospital shall send to the state director of health and to the health commissioner of the health district of residence of the patient a notice of admission on a form to be provided by the state director of health.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 61-2. (Notification of death, discharge or transfer). Within not more than three days after death, discharge with medical consent, discharge without medical consent, or transfer of a patient admitted to a tuberculosis hospital, the medical superintendent or other person in charge of such hospital shall send to the state director of health and to the health commissioner of the health district of residence of the patient a notice of such death, discharge or transfer on a form to be provided by the state director of health.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 62. (Organization).

1. The board of trustees, managers, directors or owners operating a tuberculosis hospital shall formulate the policies of the institution.

2.The medical superintendent shall be responsible to the board for the management of the institution and for the medical care and treatment of all patients.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 63. (Medical Staff).

1. The medical superintendent should be a reputable licensed physician with at least three years experience in a recognized tuberculosis hospital or a total of three years experience in tuberculosis work, two years of which should have been spent in a recognized tuberculosis hospital. In institutions of 100 or more beds, the position of medical superintendent should be full time.

2. There should be, in addition to the medical superintendent, at least one full-time resident physician for the first 100 resident patients, and one additional full-time physician for each 50 additional patients or the major fraction thereof.

3. Where the sanatorium assumes entire responsibility for the tuberculosis control service in the area, there should be, in addition to the physician required for the medical administration of the sanatorium, one full-time physician for each 100 resident deaths in the community from tuberculosis or major fraction thereof.

4. Each member of the resident staff should be a graduate of a grade A medical school and should have had a rotating internship in a general hospital.

5. The services of consultants in internal medicine, general surgery and in the medical and surgical specialities should be utilized.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 64. (Medical Services).

1. Every patient should be seen by a physician within 24 hours after admission.

2. The initial physical examination should include not only the chest and upper respiratory tract but the entire body.

3. Chest x-ray examinations should be made on admission, as frequently as indicated in the course of treatment, and on discharge. X-ray examinations of resident patients should be made at least every three months and more often if necessary.

Exception: In the case of the chronic fibroid tuberculous patient not more than six months should elapse without x-ray.

4. Patients who are acutely ill should be visited by the physician as often as necessary. All other patients confined to bed should be seen by the physician at least once daily. Ambulant patients should be seen at least once weekly by the physician and daily by the nurse in charge.

5. Temperature, pulse and respiration of bed patients should be taken at least twice each day; of ambulatory patients at least once each day.

6. Patients should be weighed once every two weeks unless contraindicated.

7. Treatment of all kinds, general and special, including regulations of physical activities of patients, should be prescribed and supervised by physicians.

8. Since rest is the basic treatment of tuberculosis, strict bed-rest should be available for all patients who need it, and definite periods of enforced rest for all others should be a part of the sanatorium routine. The amount and degree of rest should be prescribed for each patient in detail with all permitted activities and restrictions definitely specified.

9. Facilities should be available for all approved collapse therapy procedures in order that the particular treatment best adapted to a given case may be chosen freely and instituted promptly.

10. All patients receiving pneumothorax should be fluoroscoped before each refill as adequate roentgenological guidance is essential to successful and safe management.

11. Adequate dental service should be furnished at the sanatorium.

12. The medical records of patients should include the following: Admission history, social and medical history, results of physical examinations, x-ray and fluoroscopy interpretations, laboratory findings, treatments given, reports of consultations and staff meetings, progress notes, surgical and anesthetic data, diagnosis, results of postmortem examinations and the condition on admission and discharge. All entries should be dated and signed by the physician concerned. Progress notes regarding the patient's condition should be made at sufficiently frequent intervals to record significant changes in his clinical course and at the time of each examination.

13. The clinical classification of patients on admission and discharge should be made in accordance with the Diagnostic Standards of the National Tuberculosis Association.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 65. (The Care of Children). Children with clinically active tuberculosis should be treated in a separate building or in a separate ward of the building for adults.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 66. (Laboratory Procedures).

1. A complete microscopic blood examination of each patient should be made as soon as practicable after admission. Hemoglobin estimations, red cell sedimentation tests and a recognized test for syphilis should

also be performed.

2. Examination of sputum for the presence of tubercle bacilli should be made in accordance with methods recommended in the Approved Minimum Standards of Laboratory Technique as prepared by the American Trudeau Society Committee on Evaluation of Laboratory Procedures.

3. All patients in whose sputum or discharges tubercule bacilli have not been found should be tuberculin tested by the intracutaneous method.

4. A clinical and microscopic examination of the urine of newly admitted patients should be made to note specific gravity, sugar, albumin, blood and pus cells, casts, bacteria, etc. If any of these tests are positive, further studies should be made as indicated.

5. Pleural exudates and pericardial or pleural effusions, pus from ears, cold abscesses or sinuses, feces, spinal fluid, gastric washings and biopsy specimens should be examined for tubercle bacilli when indicated.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 67. (Nursing Service).

1. The director of nursing, assistant director of nursing, supervisors and head nurses should be registered in the State of Ohio, and preferably should have had special instruction and experience in tuberculosis nursing.

2. Provision should be made for new members of the general duty nursing staff who have not had instruction and experience in tuberculosis nursing to receive at least a short technical course with follow-up supervision.

3. Standard isolation technique should be used and adequate equipment for this purpose should be provided. Nursing service should be properly adjusted with respect to the proportion of infirmary, semi-ambulant and ambulant patients, the ratio of nurses for whom should be not less than 1:3, 1:8, and 1:30 respectively. This is for 24 hour coverage. If thoracic surgery is done at the institution, the ratio of nurses to patients recently operated upon should be not less than 1:2. In calculating ratios of nurses to patients suitable credit may be given for services performed by orderlies, nursing attendants or other well-trained auxiliary workers.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 68. (Health Supervision of Nurses and Other Employees).

1. All nurses and other employees shall have at the time of employment, an initial complete physical examination which shall include a tuberculin test, chest x-ray examination, a recognized test for syphilis and appropriate laboratory studies.

2. Nurses and other employees who are in contact with patients, patient's rooms, laboratories or fomites shall be x-rayed every three months. This interval may be extended to six months in the case of tuberculin-positive nurses and employees who are past the age of 30. Those who are tuberculin-negative should be retested and x-rayed every three months.

3. Those employees who do not have contact with patient's room, laboratories or fomites shall be x-rayed every six months; if tuberculin-negative they should be retested every six months.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 69. (Special Services).

1. Necessary social service facilities should be made available.
2. Systematized adequate instruction should be given patients with regard to tuberculosis as a personal and community problem.

Adopted January 13, 1946; effective February 15, 1946.

Regulation 70. (Classification of patients). Reportable cases shall be classified and defined as follows:

1. Type of Disease.
   Primary Tuberculosis: Primary tuberculosis is a first infection with tubercle bacilli and renders the individual sensitive to tuberculin. It is usually benign, but occasionally it may progress and serious complications ensue.
   Reinfection Tuberculosis: Of all persons who acquire a primary infection at some time, only a small percentage ever develops clinical disease. Following the period of the primary infection and its more or less direct consequences, a latent period usually intervenes before chronic pulmonary tuberculosis develops. The latter is due to a reinfection with tubercle bacilli. The reinfecting bacilli are derived from exogenous or endogenous sources.
2. Extent of Pulmonary Lesions. (Stage). (National Tuberculosis Association Classification)
   Minimal Tuberculosis: Slight lesions without demonstrable excavation confined to a small part of one or both lungs. The total extent of the lesions, regardless of distribution shall not exceed the equivalent of the volume of lung tissue which lies above the second chondrosternal junction and the spine of the fourth or body of the fifth thoracic vertebra on one side.
   Moderately Advanced: One or both lungs may be involved, but the total extent of the lesions shall not exceed the following limits: Slight disseminated lesions which may extend through not more than the volume of one lung, or the equivalent of this in both lungs. Dense and confluent lesions which may extend through not more than the equivalent of one-third the volume of one lung. Any gradation within the above limits. Total diameter of cavities, if present, estimated not to exceed 4 cm.
   Far Advanced: Lesions more extensive than Moderately Advanced.
3. Degree of Activity.
   a. For cases which have been under medical supervision for a period of time.
      Apparently cured: Constitutional symptoms absent. Sputum, if any, must be found negative for tubercle bacilli, not only by concentration and microscopic examination, but also by culture or animal inoculation. In case there is no sputum the fasting gastric contents should be obtained and similarly examined. Lesions stationary and apparently healed according to x-ray examinations. These conditions shall have existed for a period of two years under ordinary conditions of life.
      Arrested: Constitutional symptoms absent. Sputum, if any, must be concentrated and found microscopically negative for tubercle bacilli. Lesions stationary and apparently healed according to x-ray examination; no evidence of pulmonary cavity. These conditions shall have existed for a period of

six months, during the last two of which the patient has been taking one hour's walking exercise daily or its equivalent.
Apparently arrested: Constitutional symptoms absent. Sputum, if any, must be concentrated and found microscopically negative for tubercle bacilli. Lesions stationary and apparently healed according to x-ray examinations; no evidence of pulmonary cavity. These conditions shall have existed for a period of three months, during the last two of which the patient has been taking one hour's walking exercise daily or its equivalent.
Quiescent: No constitutional symptoms. Sputum, if any, may contain tubercle bacilli. Lesions stationary or retrogressive according to x-ray examination; cavity may be present. These conditions to have existed for at least two months during which time the patient has been ambulant.
(Frankly) Active (Improved, Unimproved): Symptoms unchanged, worse or less severe, but not completely abated. Lesions not completely healed or progressive according to x-ray examination. Sputum almost always contains tubercle bacilli.
Dead.

b. For newly diagnosed cases and cases with insufficient or limited observation.
Active: Cases of tuberculosis in which the x-ray reveals the lesions to be definitely soft or ulcerative, or in which comparative films show recent evidence of progression or retrogression of the disease. The sputum, if any, may or may not contain tubercle bacilli. Signs and symptoms of tuberculosis may or may not be present.
Questionably Active: Cases of tuberculosis in which the x-ray reveals the lesions to be of indeterminate stability, without ulceration, requiring further observation. Sputum, if any, must not contain tubercle bacilli. Physical signs of tuberculosis may or may not be evident. Symptoms are not present.
Inactive: Cases of tuberculosis in which the x-ray reveals the lesions to be stable, without ulceration and apparently healed. Sputum, if any, must be negative for tubercle bacilli. Physical signs of tuberculosis may or may not be evident. Symptoms are not present.

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